respectfully traverse this rejection under 35 U.S.C. § 103(a). The claims as amended herein, patentably distinguish over a combination of the references.

A thin-film forming apparatus recited in Claim 1 comprises a specific temperature and timing controller, i.e., a temperature and timing controller comprising a program including a cleaning sequence which is activated after completion of film formation, said cleaning sequence programmed to (1) introduce an inert gas to the reaction chamber, (2) reduce the temperature of the susceptor at a predetermined rate for cleaning, (3) when reaching a cleaning temperature which is lower than the film formation temperature, actuate the cleaning gas controller and the cleaning gas activator, and (4) evacuate the reaction chamber.

By employing the above temperature and timing controller, aluminum fluoride is not generated. Hence, in-operation time of the cleaning apparatus can be reduced, which can provide a thin-film formation apparatus with high productivity. See page 21, lines 9-11 of the Applicants' specification.

The Examiner admits that Frankel et al. do not disclose the step of reducing the temperature of the susceptor prior to cleaning the chamber. Also, the Examiner notes that Goodwin et al. disclose cooling the susceptor to prepare the reactor for a subsequent deposition run.

As described in Fig. 1 of Goodwin et al., the temperature of susceptor etching, which is equivalent to the cleaning temperature set forth in Claim 1, is 1190 °C, and the temperature of single crystal epitaxial growth, which is equivalent to the film formation temperature set forth in Claim 1, is 1130 °C. The cleaning temperature of Goodwin et al. is higher than the film formation temperature, whereas the cleaning temperature of the present invention is lower than the film formation temperature. Thus, the fact that Goodwin et al. reduce the susceptor temperature to prepare the reactor for a subsequent deposition run is irrelevant to the present invention. The combination of Frankel et al. and Goodwin et al. does not lead to the claimed invention (Claim 1). Claims 2-10 are dependent on Claim 1, and at least for the reasons described above, it would not have been obvious for one of ordinary skill in the art to conceive the claimed invention (Claims 2-10). Applicants respectfully request withdrawal of this rejection.

CONCLUSION

In light of the Applicants' foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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Dated: June 6, 2002 By: Gordon H. Olson

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1-4 have been amended as follows:

1. (Amended) A thin-film forming apparatus comprising:

a reaction chamber for forming at a film formation temperature a thin film on a workpiece placed on a susceptor provided in the reaction chamber, said susceptor being provided with a heater for heating the workpiece, said reaction chamber being provided with a conveyer for loading and unloading the workpiece into and from the reaction chamber; and

a cleaning device for cleaning unwanted deposits adhering to the inside of the reaction chamber at predetermined intervals, said cleaning device comprising:

(i) a cleaning gas controller for introducing a cleaning gas into the reaction chamber and evacuating the reaction chamber after the cleaning treatment;

(ii) a cleaning gas activator for activating the cleaning gas in radical form; and

(iii) a temperature and timing controller comprising a program including a cleaning sequence which is activated after completion of film formation, said cleaning sequence programmed to (1) introduce an inert gas to the reaction chamber, (2) reduce the temperature of the susceptor at a predetermined rate for cleaning ~~after completion of film formation~~, (3) when reaching a cleaning temperature which is lower than the film formation temperature, ~~and then to~~ actuate the cleaning gas controller and the cleaning gas activator, and (4) evacuate the reaction chamber.

2. (Amended) The apparatus according to Claim 1, wherein the controller is programmed so that the temperature of the susceptor ~~for cleaning~~ is reduced to 500°C or less before the cleaning gas is activated.

3. (Amended) The apparatus according to Claim 1, wherein the controller is programmed so that the temperature of the susceptor ~~of cleaning~~ is reduced to 470°C or less before the cleaning gas is activated.

4. (Amended) The apparatus according to Claim 1, wherein the controller is programmed to increase the temperature of the susceptor ~~for film formation is~~ higher than 500°C for film formation.

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